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ABSTRACT

This prospective, birth cohort study addressed three questions: Which individual and family-of-origin characteristics predict the age at which young men make the transition to fatherhood? Do these characteristics predict how long young men live with their children? Are individual differences in the amount of time fathers spend living with their children associated with the fathers' psychosocial characteristics in young adulthood? Individual and family-of-origin characteristics were assessed from birth until age 15, and contemporaneous characteristics were assessed at age 26. By age 26, 19 percent of the 499 study men had become fathers. Those who had experienced a stressful rearing environment and history of conduct problems were more likely to become fathers at an early age and to spend less time living with their children. Of those who experienced no risk factors, fewer than 10 percent had become fathers by age 26, versus more than 60 percent of those who experienced 5 risk factors. Fathers who lived apart from their children reported the most social and psychological difficulties in young adulthood. Findings point to individual and family-of-origin characteristics that might be targeted to delay fatherhood and increase levels of paternal involvement. (Contains 60 references.) (SM)

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Predicting Early Fatherhood and Whether Young Fathers Live with Their Children: Prospective Findings and Policy Reconsiderations

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Abstract

This prospective study of a birth cohort addressed three questions. Which individual and family-of-origin characteristics predict the age at which young men make the transition to fatherhood? Do these same characteristics predict how long young men live with their children? Are individual differences in the amount of time fathers spend living with their children associated with the fathers' psychosocial characteristics in young adulthood? In this unique study, it was found that by age 26, 19 percent of the 499 study men had become fathers. Individual and family-of-origin characteristics were assessed from birth until age 15, and contemporaneous characteristics were assessed at age 26. Young men who experienced a stressful rearing environment and a history of conduct problems were more likely to become fathers at an early age and to spend less time living with their children. Of those who experienced none of the risk factors, fewer than 10 percent had become fathers by age 26, versus more than 60 percent of those who experienced five risk factors. Fathers who lived apart from their children reported the most social and psychological difficulties in young adulthood. These findings point to individual and family-of-origin characteristics that might be targeted to delay fatherhood and increase levels of paternal involvement. However, given their troubled life histories and poor social-psychological adjustment in young adulthood, some absent fathers might have difficulties providing positive parenting and partnering unless policy initiatives to promote intact families also support young fathers.

Predicting Early Fatherhood and Whether Young Fathers Live with Their Children: Prospective Findings and Policy Reconsiderations

Research since the 1970s has demonstrated that fathers are important influences on their children's development. Fathers contribute to their children's adjustment indirectly via their financial and emotional support of the mother and directly via their own parenting behavior (Lamb, 1997). These findings have led many policymakers to conclude that children fare best when they are raised in intact families (Blankenhorn, 1995; Doherty, Kouneski, and Erickson, 1998). However, policy based purely on this premise ignores the possibility that some absent fathers, and especially young absent fathers, might have difficulty providing the sorts of parenting and partnering that foster successful adjustment in children. Indeed, such fathers may be absent precisely because they lack the skills to maintain close relationships with others. This suggests that before time and tax money are devoted to promoting intact families, we must understand which young men father children and what sorts of parenting and partnering they are likely to provide given their own life histories, their early transition to fatherhood, and their social functioning as young adults. There is little question that sensitive, responsive parenting benefits children. The issue is whether young fathers who do not reside with their children are likely to provide such parenting spontaneously or whether intensive interventions involving the family system and touching on broader aspects of fathers' social functioning will be required to teach responsible and responsive parenting and partnering skills.

To address these issues, we must know three things. First, who are young fathers? Second, do those factors that increase the risk of early fatherhood also increase the risk of absent fatherhood? Shared predictive factors would suggest that early fatherhood and absent fatherhood are connected events along a developmental pathway. Third, how do absent young fathers differ from those who reside with their children in terms of their adjustment in young adulthood? The aim of these questions is to determine which young men father children early in the life course and to evaluate the likelihood that they will foster positive child development given their life histories and current adjustment.

DO EARLY FATHERHOOD AND FATHER ABSENCE SHARE A COMMON SET OF PREDICTORS?

Fathers aged 21 and younger are frequently characterized as sexually reckless youths who fail in their responsibilities to the children they father and the mothers of those children (Lerman, 1993). Indeed, young fathers are especially likely to be absent fathers. In a study of adolescent fathers (aged 19 or younger), only 50 percent lived with their child sometime after the child's birth, and this situation was often temporary (Marsiglio, 1987).

Several theories describe a developmental pathway by which early fatherhood and underinvolved parenting behavior may arise (Belsky, Steinberg, and Draper, 1991; Geary, 2000; Jessor and Jessor, 1977; Patterson, 1982). These theories locate the origins of underinvolved fathering in a stressful rearing environment. An individual whose own parents were insensitive, harsh, or unpredictable is more likely to have been insecurely attached and to have experienced behavior problems in childhood and adolescence. Insecure attachment and behavior problems, in turn, increase the likelihood that an individual will engage in risky sexual behavior and become a parent himself at a young age. He will also be less likely to form close relationships in young adulthood and to invest time and resources in his own partner and offspring.

Consistent with this developmental pathway, the *early* timing of the transition to fatherhood is predicted by individual, family-of-origin, and neighborhood risk factors. Individual-level factors such as low academic ability, school disciplinary problems and dropout, delinquency and drug use, deviant peers, and precocious sexual activity are linked to early fatherhood, which has typically been defined as 21 years or younger (Dearden, Hale, and Woolley, 1995; Elster, Lamb, and Tavare, 1987; Fagot et al., 1998; Hanson, Morrison, and Ginsburg, 1989; Hardy and Duggan, 1988; Lerman, 1993; Stouthamer-Loeber and Wei, 1998; Thornberry, Smith, and Howard, 1997). Boys who become teen fathers tend to come from large, low-SES families and single-parent homes in which the parents have little education and low educational aspirations for their children. Their mothers are also more likely to have been teens when

they first gave birth, to have a harsh and inconsistent disciplinary style, and to engage in antisocial behavior (Dearden, Hale, and Woolley, 1995; Fagot et al., 1998, Lerman, 1993; Stouthamer-Loeber and Wei, 1998; Thornberry, Smith, and Howard, 1997). Finally, young people who live in communities with high rates of poverty, welfare use, and single-mother households are at higher risk of teen parenting, although evidence for these macrolevel effects has not been found consistently (Stouthamer-Loeber and Wei, 1998; Thornberry, Smith, and Howard, 1997).

Few studies have had sufficient data to test the hypothesis that early fatherhood and absent fatherhood share a common set of risk factors, as hypothesized by the developmental theories described above. Rather, studies of absent fatherhood have focused primarily on proximal influences, such as the status or quality of a father's relationship with his child's mother. For example, children born out of wedlock are four times more likely in the United States and six times more likely in Great Britain to have an absent father (Clarke, Cooksey, and Verropoulou, 1998). However, young fathers who are in supportive, intimate relationships with the mother soon after the baby is born are more likely to remain involved with the mother and child, at least in the short-term (Cutrona et al., 1998).

The present study is unique in having followed a group of men prospectively from childhood into adulthood, thus allowing us to test whether the early transition to fatherhood and subsequent father involvement share a common set of antecedents. This study also allows us to examine how the effects of individual and family-level influences might change as the transition to fatherhood shifts from a nonnormative to a normative event. Family background characteristics might be more strongly associated with an adolescent transition to fatherhood, when family economic resources and attitudes are more proximal. As an individual ages, however, his own life-course experiences might be more influential in his decision to father a child (South, 1999).

WHO ARE ABSENT FATHERS?

Because researchers have demonstrated a positive effect of paternal involvement on children's outcomes, one policy assumption is that fathers should be highly involved in their children's upbringing and that marriage provides the most stable environment in which to raise children (Blankenhorn, 1995). This assumption is based on findings that (1) father-absent children fare poorly compared with children in intact families (Biller and Kimpton, 1997) and (2) in intact families, children of highly involved fathers demonstrate increased cognitive and social competence relative to children whose fathers are less involved (Pleck, 1997).

However, father-absent children fare poorly compared with children in intact families because (a) single parents experience more economic stresses than married couples, (b) single mothers often lose a source of emotional support when their partner leaves, (c) the child may feel s/he has been abandoned by the absent parent, and (d) the parental conflict that may precede and/or follow a divorce or separation may adversely affect the child (Lamb, 1997). These findings suggest that father involvement has a positive effect on offspring outcomes *only when* a father can contribute indirectly to the child's well-being via his economic and emotional support of the mother and directly via a close and responsive relationship with the child. Before accepting the conclusion that encouraging fathers to cohabit with their children will necessarily benefit the children, one must consider the possibility that some fathers will have difficulties providing the sort of responsive and supportive parenting and partnering that is associated with positive child outcomes. Specifically, if young, absent fathers are characterized by a history of attachment and behavior problems, it is likely that they will need a great deal of help in providing support to their partners and their children.

AIMS

We ask three questions regarding the transition to fatherhood and subsequent father involvement. First, are young men who come from disadvantaged family backgrounds—and whose behavior puts them at risk for a range of adverse outcomes in young adulthood—more likely to become fathers at a young age? We also examine whether the effects of these risk factors change with the age at which young men make the transition to fatherhood, from adolescence to the mid-20s.

Second, do these same risk factors predict how much time fathers spend living with their first-born child? Although it would have been desirable, we do not include measures of the father's relationship with his child's mother at the time of the child's birth. Unlike many studies that start with a pregnancy, our study of young parents followed a birth cohort of young men prospectively, assessing them at scheduled ages. Thus, we could not collect contemporaneous data on the father's relationship with the mother of his child if the child was born between assessment phases. By the time these fathers were interviewed about their children, many were no longer with the child's mother and, as a result of the breakup, may have retrospectively recalled their past relationship with her negatively or otherwise inaccurately.

Finally, do fathers who live full-time with their children differ from fathers who do not? If young men with a history of attachment and behavior problems are less likely to spend time living with their children, to what extent does this reflect stable individual differences that are manifested in their adjustment in young adulthood? By assessing social and psychological functioning in young adulthood, we can assess the likelihood that absent fathers would be reliable sources of financial and emotional support. We do so controlling for the influence of marriage on fathers' behavior, because married men tend to have more successful outcomes in young adulthood than do unmarried men, such as lower rates of substance abuse problems and risk-taking behavior and higher incomes (Umberson, 1987; Waite, 1995). In addition, men who have children before marriage leave school earlier, have lower earnings,

work less, and are more likely to live in poverty than men who did not father children before marriage (Nock, 1998).

METHODS

Participants

Participants are part of the Dunedin Multidisciplinary Health and Development Study, a longitudinal study of the health, development, and behavior of a cohort of children born between April 1, 1972, and March 31, 1973, in Dunedin, New Zealand. Details of the study are provided by Silva and Stanton (1996). Perinatal data were obtained at delivery and when the children were later traced for follow-up at age 3. The assessment included 1,037 participants (91 percent of eligible births; 52 percent male) as the base sample for the longitudinal study. The social class of the fathers matched that of the general population of New Zealand's South Island.

The Dunedin sample has been assessed with a diverse battery of psychological, medical, and sociological measures with high rates of participation at age 3 (n=1,037), 5 (n=991), 7 (n=954), 9 (n=955), 11 (n=925), 13 (n=850), 15 (n=976), 18 (n=993), 21 (n=992), and most recently at age 26 when we assessed 980 of the 1,019 living study members. The basic research procedure involves bringing four sample members per day (including emigrants living overseas) to the research unit within 60 days of their birthday for a full day of individual data collection. Each research topic is presented, in private, as a standardized module by a different trained examiner in counterbalanced order throughout the day. In addition to a day-long assessment of the study members, data are gathered from sources such as parents, schools, and courts.

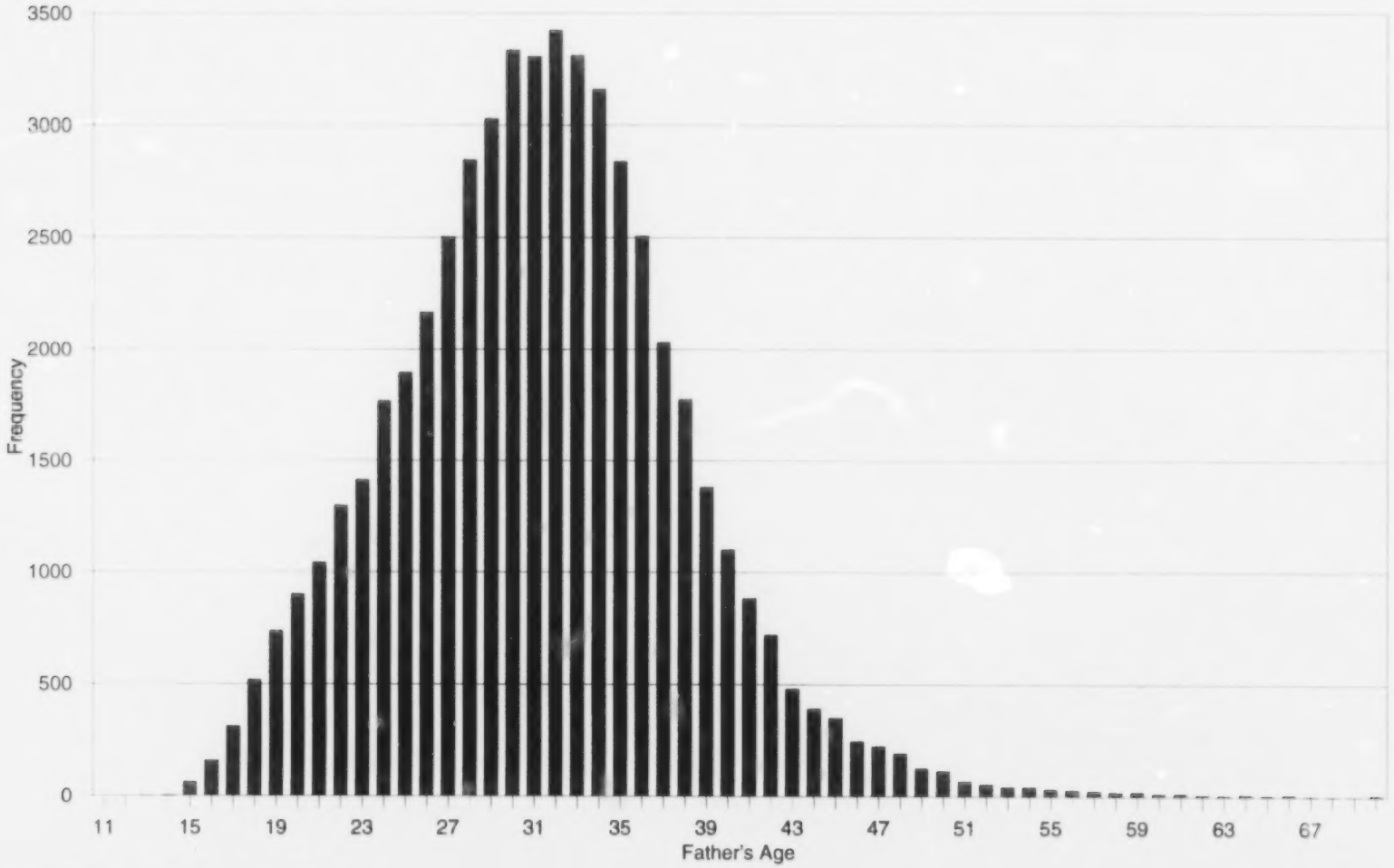
Fatherhood Outcomes

Transitions to Fatherhood. Study males reported when they fathered a child on two 5-year life history calendars (LHC), one administered at the age-21 interview and the other administered at the age-26 interview. The LHC is a visual method that facilitates accurate recall of life events, their timing, and duration (Caspi et al., 1996). The period covered by these calendars extended from the study member's 15th birthday to the age-26 interview. By age 26, 94 of the study men had fathered a child. The average age at which study men first fathered a child was 21.7 years (range=14 to 26), and 28 percent of the fathers were teens (19 or under) when their first child was born. In New Zealand, the median age of first fatherhood was 31.5 in 1999 (Statistics New Zealand, personal communication, June 22, 2000). In this article we use the term "fatherhood" among men to refer to the equivalent of "childbearing" among women. Figure 1 shows the distribution of fathers' ages for 1997 New Zealand births (Statistics New Zealand, personal communication, July 11, 2000). Note that this figure presents the distribution for all 1997 births and not just first births. This figure demonstrates that all the fathers in our sample could be considered to have made an early transition to fatherhood relative to the normative age of childbearing in New Zealand.

Amount of Time Fathers Spent Living with Their Children. The percentage of a child's life that a father spent living with that child was calculated from the LHCs that were completed at ages 21 and 26. For each month after a father reported the birth of a child, he then reported whether or not he lived with that child. Our analyses focus on the amount of time fathers spent living with their first-born child because we were specifically concerned with the link between age at first birth and the father's subsequent residential status. Forty-three percent of the fathers had more than one child.

The amount of time fathers spent living with their first-born child was calculated by dividing the child's age (in months) by the number of months the father reported living with that child. On average, fathers spent 60 percent of a child's life living with that child. Nineteen percent of the fathers never lived

FIGURE 1
Age of New Zealand Fathers, 1997 Births



Source: Statistics New Zealand

with their first-born child and 42 percent lived with the child from the time the child was born until the age-26 interview. At the age-26 assessment, the study men's first-born children were 4.4 years old on average and ranged in age from 1 month to 11.8 years.

Childhood Risk Factors for Early Fatherhood and Father Absence

Predictors of early and absent fatherhood comprised family-of-origin and individual characteristics such as those cited in developmental theories that locate the origins of precocious sexual behavior and underinvolved parenting in a child's experience of a stressful rearing environment and his own problem behavior. Additional details about the reliability and validity of these measures is provided by Moffitt et al. (2001). Only one study man fathered a child before age 15, so the predictor variables were temporally nonoverlapping with the transition to fatherhood for the vast majority of men.

Family-of-origin characteristics were measured prospectively from the study members' birth until their 15th birthday.

Study Member Born to Teen Mother. The study members' mothers ranged in age from 15 to 45 when they first gave birth or adopted a child. Twenty-one percent of the mothers were 19 years or younger when they first gave birth.

Study Members' Parents' Criminal Conviction History. Parental conviction history was assessed via a questionnaire posted to parents in 1998 (93 percent of the mothers and 86 percent of the fathers returned questionnaires). Parents were asked to report if they had ever been convicted of a crime; 3 percent of the mothers and 12 percent of the fathers reported that they had. For 14 percent of the study men, one or both parents had been convicted of a crime.

Socioeconomic status (SES) of study members' families was measured with a six-point scale that places each occupation into one of six categories based on the educational level and income associated with that occupation in the data from the New Zealand census (Elley and Irving, 1976). The scale ranges from 1 (*unskilled laborer*) to 6 (*professional*). The variable used in our analyses, parental SES, is the

average of the highest SES level of either parent across the seven assessments of the Dunedin Study between birth and the age-15 assessment (alpha=.92). It reflects the socioeconomic conditions experienced by study members while they grew up.

Family conflict was measured at ages 13 and 15 via the Family Environment Scale (Moos and Moos, 1981). The primary caregiver indicated by answering "true" or "false" whether there was openly expressed anger, aggression, and conflict among family members. Of the nine items on the conflict scale, examples included "*family members often criticize each other*" and "*family members rarely become openly angry.*" The reports at ages 13 and 15 were standardized and averaged (alpha=.85).

Number of Caretaker Changes. The primary caregiver at each assessment was asked to report all changes of "mother figure" and "father figure" since the prior assessment. The number of different caretakers that study members had between birth and the age-15 assessment was summed and ranged from 0 to 6.

Number of Years Living with a Single Mother. The number of years study members spent in a single-parent home between birth and the age-15 assessment was recorded and ranged from 0 to 11 years.

Harsh discipline was measured at ages 7 and 9 using a checklist of disciplinary behaviors. Parents were asked to indicate if they engaged in ten behaviors, such as "*smack [your child] or hit him/her with something*" and "*try to frighten [your child] with someone like his/her father or a policeman.*" These items were averaged across ages 7 and 9 (alpha=.71).

Inconsistent discipline was measured at ages 7 and 9 as part of an interview about how parents dealt with the study children when they were naughty or misbehaved. Mothers evaluated their own and their husbands' behavior from 0 (*always the same*) to 3 (*very changeable*). These items were averaged across mothers and fathers and across ages 7 and 9 (alpha=.60).

Parent-child relationship quality was assessed at ages 13 and 15 by a 12-item self-report measure taken from the Inventory of Parent Attachment (Armsden and Greenberg, 1987). The items tap

the extent to which adolescents feel they can trust their parents, can communicate with their parents, and are not alienated from their parents. Items are rated from 1 (*almost never* or *never*) to 4 (*almost always* or *always*). The reports at ages 13 and 15 were standardized and averaged (alpha=.82).

Individual characteristics covered the period from age 11 to age 15.

Early Initiation of Sexual Activity. At age 21, study members reported the age at which they first had sexual intercourse. Twenty-eight percent of the study members reported first having sexual intercourse before age 16. Sixteen years is the legal age of consent for sex in New Zealand.

History of conduct disorder was assessed according to the criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). To make the diagnosis we incorporated information gathered during interviews with the study members and from checklists completed by their parents and teachers at ages 11, 13, and 15. At each assessment age, information about symptoms of conduct disorder was gathered with reference to the "past 12 months." Study members were coded as having a history of conduct disorder if they met diagnostic criteria for conduct disorder at age 11, 13, or 15. Twenty-four percent of the study men were diagnosed with conduct disorder at one or more assessment ages.

History of Depression. At ages 13 and 15, study members were administered the Diagnostic Interview Schedule for Children (DISC-C; Costello et al., 1982) to assess DSM-III depressive disorders. The modifications, psychometric properties, and descriptive epidemiology of the DISC-C in this sample have been described by McGee et al. (1990). Five percent of study men received a diagnosis of dysthymia or major depression at age 13 and/or age 15.

Leave School before Age 16. At the age-15 interview, study members were asked when they planned to leave school. Possible responses ranged from 0 (*already left*) to 5 (*after Bursary/Scholarship examinations*). Twenty percent of the study men had already left or planned to leave school at age 15 when attendance was no longer mandatory.

Reading Scores. At age 15, study members took the Burt Word Reading Test (Scottish Council for Research in Education, 1976), which is a word-recognition test normed for New Zealand children. It resembles the American Wide-Range Achievement Test for reading.

Psychosocial Outcomes at Age 26

Sociodemographics. Five sociodemographic variables were measured at age 26.

1. Study members' *SES* was measured with the six-point occupational scale described above (Elley and Irving, 1985).

2. Study members reported the highest level of *education* they attained (0 = *dropout* to 3 = *BA or higher*).

3. Study members used the LHC to report the number of months between age 21 and age 26 that they were *unemployed* but seeking employment.

4. Study members used the LHC to report the number of *residence changes* they made from age 21 to age 26.

5. Study members reported the *number of children* they had at age 26.

Personality. At age 26 the study members completed a modified version of the Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982). The MPQ (Form NZ) is a self-report personality instrument designed to assess a broad range of individual differences in affective and behavioral style, yielding ten different scales (Krueger, Caspi, and Moffitt, 2000). These can be combined to measure three higher-order superfactors: negative emotionality, positive emotionality, and constraint (Tellegen and Waller, in press). Individuals high on *negative emotionality* have a low general threshold for the experience of negative emotions such as fear, anxiety, and anger and tend to break down under stress. Individuals high on *positive emotionality* tend to seek pleasurable experiences by forming relationships with others and by engaging the environment and overcoming the challenges it presents. Individuals high on *constraint* tend to endorse social norms, act in a cautious and restrained manner, and avoid thrills (Tellegen et al., 1988). The reliabilities of the three superfactors were above alpha=.79.

Mental Health. The Diagnostic Interview Schedule (Robins et al., 1995) was used to collect data on *depression*, *anxiety*, and *drug and alcohol dependency symptoms*. The reporting period was the 12 months prior to the interview. Diagnostic procedures, reliability, and validity of the DSM diagnoses made in this sample have been reported previously (Newman et al., 1996). The total number of symptoms was recorded for each disorder. The LHC was used to record the number of months between age 21 and age 26 that study members were *disabled by a mental health or drug problem*.

Antisocial Behavior. At age 26, study members completed the Self-Reported Crime Interview (Elliott and Huizinga, 1989), which is a standardized instrument that inquires about 48 different illegal acts that study members might have committed in the past 12 months. Details about the reliability and validity of this instrument in the Dunedin study are available in Moffitt et al. (1994) (alpha = .88; 1 month test-retest reliability = .90). Study members reported the *variety of criminal offenses* in which they engaged; scores ranged from 0 to 26. The number of *adult criminal convictions* they incurred was found by searching the central computer system of the New Zealand police for court conviction records for all courts in New Zealand and Australia. The number of adult criminal convictions ranged from 0 to 82. *Partner violence* was assessed with a modified version of the Conflict Tactic Scales (CTS, Form R; Straus, 1990). Details about this scale are reported in Moffitt et al. (1997). The scale includes all nine physical violence items from the CTS plus four additional items that capture other physically abusive behaviors (scored 0–1). It yields a score for physical violence perpetration (alpha = .76) and a score for physical violence victimization (alpha=.82). The scores are correlated r = .58 and they were summed. Only individuals who had a partner for at least 1 month in the past year were scored on this variable. Finally, study members' response to the following question from the Self-Reported Crime Interview was recorded: "How many times in the last year have you been *so angry with a child that you hit them*?" Because the rate of hitting was low, this variable was dichotomized to distinguish those who had not hit a child in anger (96 percent) from those who had done so at least once (4 percent).

Informant reports were collected to corroborate the study members' reports of their own behavior. Informant reports were collected for 95 percent of the study men by mailing a brief questionnaire about problem behavior and personality to individuals nominated by each study member as people who knew him well. Most informants were best friends, partners, or family members. Response options for problem behavior items were "not a problem," "bit of a problem," and "yes, a problem." Informants reported *work problems* as "has conflicts with people at work" and "problems finding or keeping a job." They reported *financial problems* as "lacks enough money to make ends meet" and "poor money manager." Informants reported about *violence* on the item "gets into fights." Informants reported about *antisocial personality* on six items: "has trouble controlling anger, hot temper," "blames others for own problems," "does not show guilt after doing something bad," "impulsive, rushes into things without thinking," "good citizen (reverse coded)," and "does things against the law." Informants reported *alcohol* and *marijuana problems* as "has alcohol problems" and "has marijuana or other drug problems." Informants reported *anxiety problems* as "has unreasonable fears or worries," "gets nervous easily," and "worries a lot." They reported *depression problems* as "feels that no one loves them," "seems lonely," "feels depressed, miserable, sad, or unhappy," and "talks about suicide."

Means and standard deviations for the age-26 outcomes are presented in Table 1. The personality and informant data were standardized to have a mean of 0 and a standard deviation of 1.

RESULTS

What Predicts the Age at Which Males Become Fathers?

Event history analysis was conducted to determine whether the instantaneous probability of fathering a child was influenced by the family-of-origin and individual characteristics. Unlike ordinary least squares (OLS) or logistic regression analyses, event history analyses retain information about censored individuals (e.g., study members who did not become fathers by age 26). Event history analyses

TABLE 1
Means and Standard Deviations for Study Men's Age-26 Outcomes
(unstandardized scores)

Age-26 Psychosocial Characteristics (n=498)	Means (Standard Deviations)
Sociodemographic characteristics	
SES	3.06 (1.46)
Education	1.66 (.99)
Number of months unemployed	3.48 (8.35)
Number of residence changes	6.32 (3.56)
Number of children	.30 (.72)
Mental health characteristics	
Number of depression symptoms	4.34 (9.76)
Number of anxiety disorder symptoms	8.21 (10.25)
Number of marijuana dependency symptoms	2.72 (5.21)
Number of alcohol dependency symptoms	7.02 (9.03)
Months disabled by mental health/drug problems	1.07 (6.23)
Antisocial characteristics	
Variety of criminal offenses	4.24 (4.02)
Number of adult convictions	1.96 (7.12)
Partner violence	.80 (2.12)

Note: Personality characteristics and informant reports were standardized to have a mean of 0 and a standard deviation of 1.

generate two statistics. The survival function is the proportion of the initial sample that did not experience the event at a given time (e.g., the proportion who did not become fathers by age 26). The hazard function is the probability that an individual will experience the event at a given point in time, if the event has not already occurred.

Univariate hazard models were first tested to assess the separate effects of the individual and family-of-origin characteristics on the hazard function (see Table 2). The coefficients in column 1 of the table show the relative risk of fathering a child at any age before 26. A coefficient greater than 1 indicates an increased likelihood of fathering a child at any age before 26 and a coefficient less than 1 indicates a decreased likelihood of doing so. For example, compared to study members who were born to older mothers, those who were born to teen mothers were 2.51 times as likely to father a child between ages 14 and 26. Thus, column 1 of the table shows that an increased risk of fathering a child between ages 14 and 26 was associated with being born to a teen mother, parental criminal convictions, low SES, caretaker changes, time spent living with a single mother, and having a poor-quality relationship with one's parents. Column 1 also shows that an increased risk of fathering a child between ages 14 and 26 was associated with the early initiation of sexual activity, a history of conduct disorder, plans to leave school before age 16, and low reading scores.

A proportional hazards model was used to determine the multivariate effect of the family-of-origin and adolescent characteristics on the hazard function. The family-of-origin characteristics were entered as a block in the first step of the model. Column 2 shows that, controlling for the other family-of-origin characteristics, being born to a teen mother increased the likelihood of becoming a father at any time between 14 and 26 years. Living with a single parent and having a poor relationship with one's parents also increased the likelihood of becoming a father at any time between 14 and 26 years, although these effects were only marginally significant.

TABLE 2
Effect of Family-of-Origin and Individual Characteristics on the Likelihood of Becoming a Father: Hazard Ratios from Univariate and Multivariate Cox Regression Analyses

Prospective Measures from Birth through Age 15 (n=499)	Univariate Hazard Model Hazard Ratio (e^{β})	Multivariate Hazard Model Hazard Ratio (e^{β})	
		Model 1	Model 2
Family-of-origin characteristics			
Born to teen mother	2.51***	1.95**	1.72*
Either/both parents convicted of a crime	1.80*	1.41	1.24
High SES	.76**	0.87	1.04
Family conflict	1.05	0.93	0.86
Number of caretaker changes	1.40**	1.05	0.95
Number of years living with single mother	1.17***	1.13†	1.16*
Harsh discipline	1.02	1	1
Inconsistent discipline	1.34	1.01	0.88
Poor parent-child relationship quality	1.32**	1.23†	1.06
Individual characteristics			
Initiation of sexual activity before age 16	2.91***		2.01**
History of conduct disorder	2.88***		1.77*
History of depression	1.14		0.55
Leave school before age 16	3.83***		2.47***
High reading scores	.98***		0.99

***$p \leq .001$, **$p \leq .01$, *$p \leq .05$, †$p \leq .10$

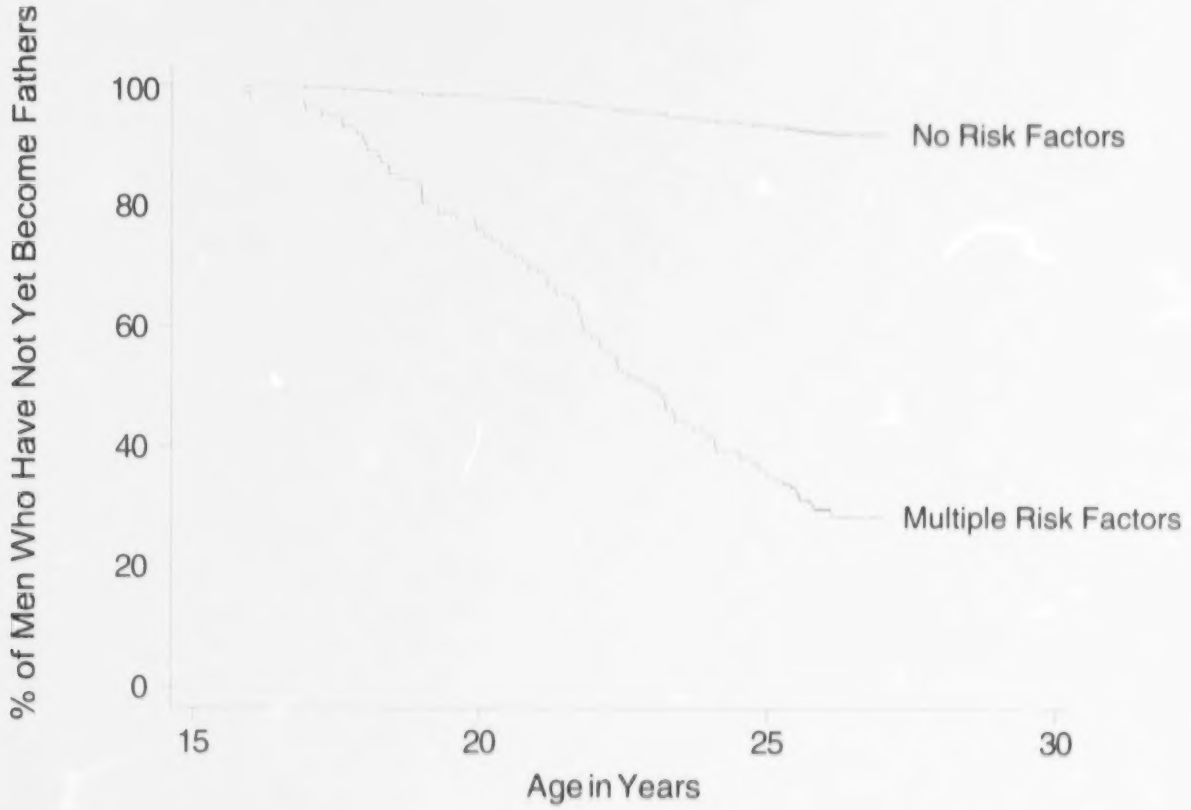
Note: Hazard ratios greater than 1 indicate an increased likelihood and hazard ratios less than 1 indicate a decreased likelihood of fathering a child between ages 14 and 26 compared to the baseline category.

Individual characteristics were entered at the second step in the model. Column 3 indicates that, controlling for these, being born to a teen mother and living with a single parent still increased the likelihood of becoming a father. At the individual level, early initiation of sexual activity, a history of conduct disorder, and plans to leave school before age 16 increased the likelihood of becoming a father at any time between 14 and 26 years.

Figure 2 shows the survival curves for those who experienced none of the risk factors that were statistically significant in the multivariate model (born to teen mother, time spent living with a single parent, precocious sexual activity, history of conduct problems, and early school leaving) versus the survival curve for those who experienced all five risk factors. Of those who experienced none of the risk factors, fewer than 10 percent had become fathers by age 26. Of those who experienced all five risk factors, more than 60 percent had become fathers by age 26.

Do the effects of these family-of-origin and individual characteristics change depending on when the transition to fatherhood occurs? On the one hand, we might expect that individual and family-of-origin characteristics predict the transition to teen fatherhood but not the transition to fatherhood in the mid-20s when the risk factors are more distal and fathering a child is more normative (South, 1999). On the other hand, at this point in our longitudinal study (i.e., by age 26) all the fathers in our sample could be considered to have made an early transition to fatherhood relative to the normative age of childbearing in New Zealand (see Figure 1). Indeed, recent theories have argued that the period from age 18 to age 25 should be considered as distinct from both adolescence and adulthood in that it is characterized by change and exploration of possible life directions (Arnett, 2000). Consequently, we might expect that family and individual risk factors would predict the transition to fatherhood in our sample, regardless of the age when the event occurred because all the births were "early." To evaluate these competing hypotheses we tested the proportional hazards assumption. This assumption states that the effects of the predictor variables are constant over time. If, for example, a history of conduct problems predicts the

FIGURE 2
Proportion of Those Experiencing No Family or Individual Risks versus Multiple Risks Who Have Not Made the Transition to Fatherhood



transition to fatherhood, it should do so equally well for the transition to teen fatherhood and the transition to fatherhood in the early to mid-20s, because both are early for this contemporary cohort. In graphic terms, if the hazard functions are proportional, then the survival curves for those with a history of conduct problems and those without such a history should not cross. A test of this assumption was conducted globally, $\chi^2(28)=27.92$, ns, and for individual predictor variables (only the χ^2 value for parent-child relationship quality was significant), and revealed that the effects were constant, regardless of whether the transition to fatherhood occurred in late adolescence or early adulthood. That is, the individual and family-of-origin variables predicted the transition to teen fatherhood as well as the transition to fatherhood in the early to mid-20s.

What Predicts the Amount of Time a Father Spends Living with His Child?

The first set of analyses found that a stressful rearing environment, a history of conduct problems, precocious sexual behavior, and school difficulties increased the risk of becoming a father by age 26. Do absent fathers share a similar set of antecedents? OLS regression was used to test whether the family-of-origin and individual risk factors predicted how much time fathers spent living with their child. The sample in this analysis was restricted to those 93 study members who had fathered a child by age 26 and who had reported on the amount of time they spent living with their first-born child (data on this variable were missing for one father). The proportion of a child's life that a father spent living with that child was regressed on each of the 14 family-of-origin and individual characteristics (see Table 3). The significant, negative coefficients in column 1 of the table show that the amount of time a father spent living with his child decreased significantly if the quality of his relationship with his parents had been poor, if he initiated sexual activity before age 16, and if he had a history of conduct disorder. For example, fathers who had a history of conduct disorder spent 35.34 percent less time living with their child than fathers who did not have a history of conduct problems. The father's parents' criminal conviction history, conflict and a high number of caretaker changes in his family of origin, and his low

TABLE 3
Individual Predictors of the Percentage of Time Fathers Spend Living with Children before and after Controlling for Father's Age at Child's Birth

Prospective Predictors from Birth to Age 15 (n=93)	Unstandardized Regression Coefficients (Standardized Coefficients)[a]	
	Before Controlling for Age at Birth of First Child	After Controlling for Age at Birth of First Child
Age at birth of 1st child		8.01 (.52)***
Family-of-origin characteristics		
Born to teen mother	-6.64 (-.08)	-3.47 (-.04)
Either/both parents convicted of a crime	-20.53 (-.19)‡	-10.84 (-.10)
High SES	4.43 (.12)	2.13 (.06)
Family conflict	-9.40 (-.20)‡	-6.75 (-.14)
Number of caretaker changes	-8.22 (-.19)‡	-4.46 (-.10)
Number of years living with single mother	-2.95 (-.14)	-2.41 (-.11)
Harsh discipline	-1.01 (-.13)	-.97 (-.13)
Inconsistent discipline	-14.17 (-.16)	-10.67 (-.12)
Poor parent-child relationship quality	-10.34 (-.23)*	-11.99 (-.27)**
Individual characteristics		
Initiation of sexual activity before age 16	-22.44 (-.26)*	-9.65 (-.11)
History of conduct disorder	-35.34 (-.41)***	-23.24 (-.27)**
History of depression	7.59 (.04)	7.71 (.04)
Leave school before age 16	-10.85 (-.12)	3.08 (.04)
High reading scores	.51 (.20)‡	.03 (.01)

***$p \leq .001$, **$p \leq .01$, *$p \leq .05$, ‡$p \leq .10$

[a]Negative regression coefficients represent decrease in the amount of time fathers spend living with their first-born child.

reading scores were marginally significant predictors of the amount of time a father spent living with his child.

It is possible that the association between the family-of-origin and individual characteristics and the amount of time a father lived with his child is a spurious one that can be accounted for by the father's age when he became a parent. Young fathers are more likely to come from families characterized by high conflict, instability, and criminality, to have initiated sexual activity at a young age, and to have poor reading skills and conduct problems. Consequently, we re-ran the regression analyses controlling for the father's age when he became a parent. When the age at which a young man became a father was controlled for, poor parent-child relationship quality and a history of conduct disorder remained significant predictors of the amount of time a father spent living with his child, as shown in column 2. That is, regardless of how old he was when he became a father, a history of conduct problems and a poor relationship with his own parents predicted that a young man would spend less time living with his first-born child.

Does the Proportion of Time a Father Spends Living with His Child Change as a Function of the Number of Risk Factors He Experienced in Childhood and Adolescence?

The results of the regression analysis indicated that the amount of time a father spent living with his child decreased as a function of both family-of-origin characteristics (e.g. one or both parents convicted of a crime, family conflict, a high number of caretaker changes, and poor quality of the parent-child relationship) and individual characteristics (e.g., early initiation of sexual activity, a history of conduct disorder, and poor reading skills). Five dichotomous risk factors were created on the basis of the significant and marginally significant findings, and a cumulative risk analysis was conducted to determine whether the amount of time a father spent living with his child decreased linearly as a function of these risks. Fathers were considered at risk (1) if one or both of their parents had been convicted of a crime (14 percent of the study men), (2) if they scored in the bottom quartile on a composite measure of

family environment (parent-child relationship quality, family conflict, and number of caretaker changes were standardized and averaged), (3) if they initiated sexual activity before age 16 (28 percent of the study men), (4) if they scored in the bottom quartile on the Burt Word Reading Test, and (5) if they met diagnostic criteria for conduct disorder at age 11, 13 and/or 15 (24 percent of the study men).

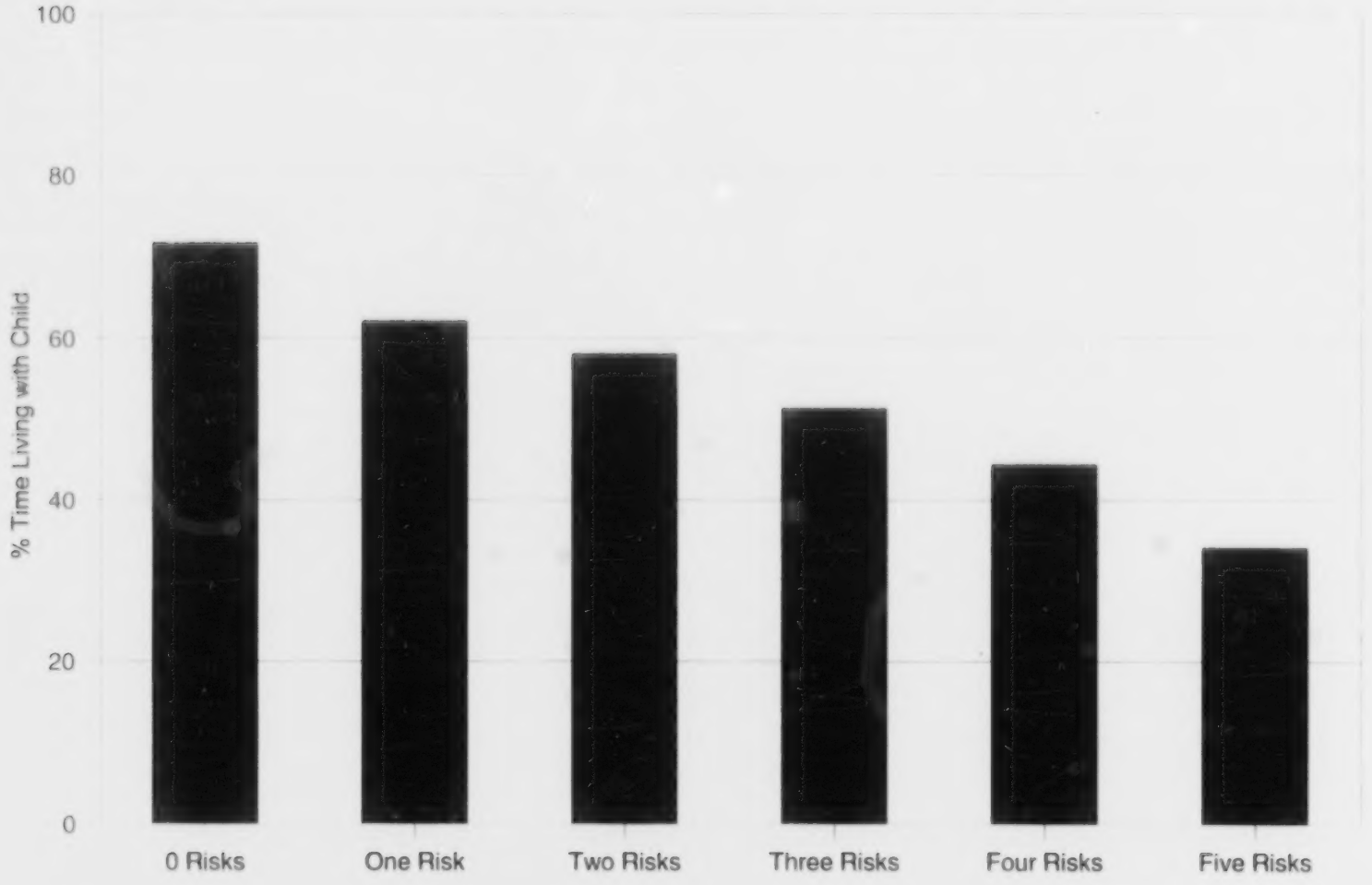
A cumulative risk analysis was conducted in which the results of the regression model (controlling for father's age at first birth) were re-expressed as the average effects of having any one, two, three, four, or five of the five risk factors. The results indicated that the amount of time a young father spent living with his first-born child decreased as the number of risk factors he experienced increased. On average, a father who experienced none of the risk factors was resident for 72 percent of his child's life, whereas a father who experienced all five risk factors was resident for only 34 percent of his child's life (Figure 3).

These analyses point to a common set of family-of-origin and individual characteristics that predicted both the early transition to fatherhood and how long a young man would spend living with his first-born child. The final set of analyses assessed individual differences in young adulthood among fathers who differ in the amount of time they live with their children.

Do Fathers Who Live Full-Time with Their Children Differ from Those Who Live Some or None of the Time with Their Children?

The study men were divided into three groups of fathers and one group of nonfathers. Those who spent 100 percent of their first-born child's life living with that child were coded as living "full-time" with their child (n=39). Those who spent between 0 percent and 100 percent of their child's life living with that child were coded as living "part-time" with their child (n=36). Of those who lived only some of the time with the child, 25 percent were resident for less than 20 percent of the child's life and another 25 percent were resident for 75–95 percent of the child's life. Those who spent 0 percent of their child's life

FIGURE 3
Amount of Time a Young Man Spends Living with His Child (Expressed as a Percentage of the Child's Life) as a Function of Number of Risk Factors, Controlling for Father's Age at First Birth



living with that child were coded as living "no-time" with their child (n=18). A fourth group of nonfathers was included as a comparison (n=405).

OLS regression analyses were conducted to contrast fathers who lived only some or none of the time with their children to fathers who lived full-time with their children. Marital status (married versus unmarried) was included as a covariate because, in the Dunedin study, fathers who lived full-time with their children were more likely to be married. Cohabitation status was not included as a covariate because approximately equal proportions of men in each of the father and nonfather groups had cohabited in the past year; thus, cohabitation could not have accounted for differences observed between the groups. In the Dunedin study, 8.6 percent of those who were not yet fathers were married; of those who never resided with their children, none were married; 13.9 percent of those who lived some of the time with their children were married; and 48.7 percent of those who lived full-time with their children were married. In 1996, the average age for first marriage was 29.2 years for men in New Zealand (*New Zealand Official Yearbook*, 1998).

Figures 4a–4e display mean scores for full-time fathers, some-/no-time fathers, and nonfathers on the age-26 characteristics. These were standardized to enable comparisons across the different metrics. All means were adjusted for the marriage covariate. A group difference of .2 standard deviations represents a small effect, a difference of .5 represents a moderate effect, and a difference of .8 represents a large effect (Cohen, 1992).

Sociodemographic Profile. Controlling for marital status, fathers who lived only some or none of the time with their children had lower SES [$t(492)=-2.00$, $p \leq .001$], were unemployed for more months [$t(493)=4.38$, $p \leq .05$], made significantly more residence changes [$t(493)=2.14$, $p \leq .05$], and had significantly more children [$t(493)=7.43$, $p \leq .001$] than full-time fathers, but did not differ in terms of educational attainment.

FIGURE 4a
Father and Nonfather Group Differences on Sociodemographic Profile
(means adjusted for covariate)

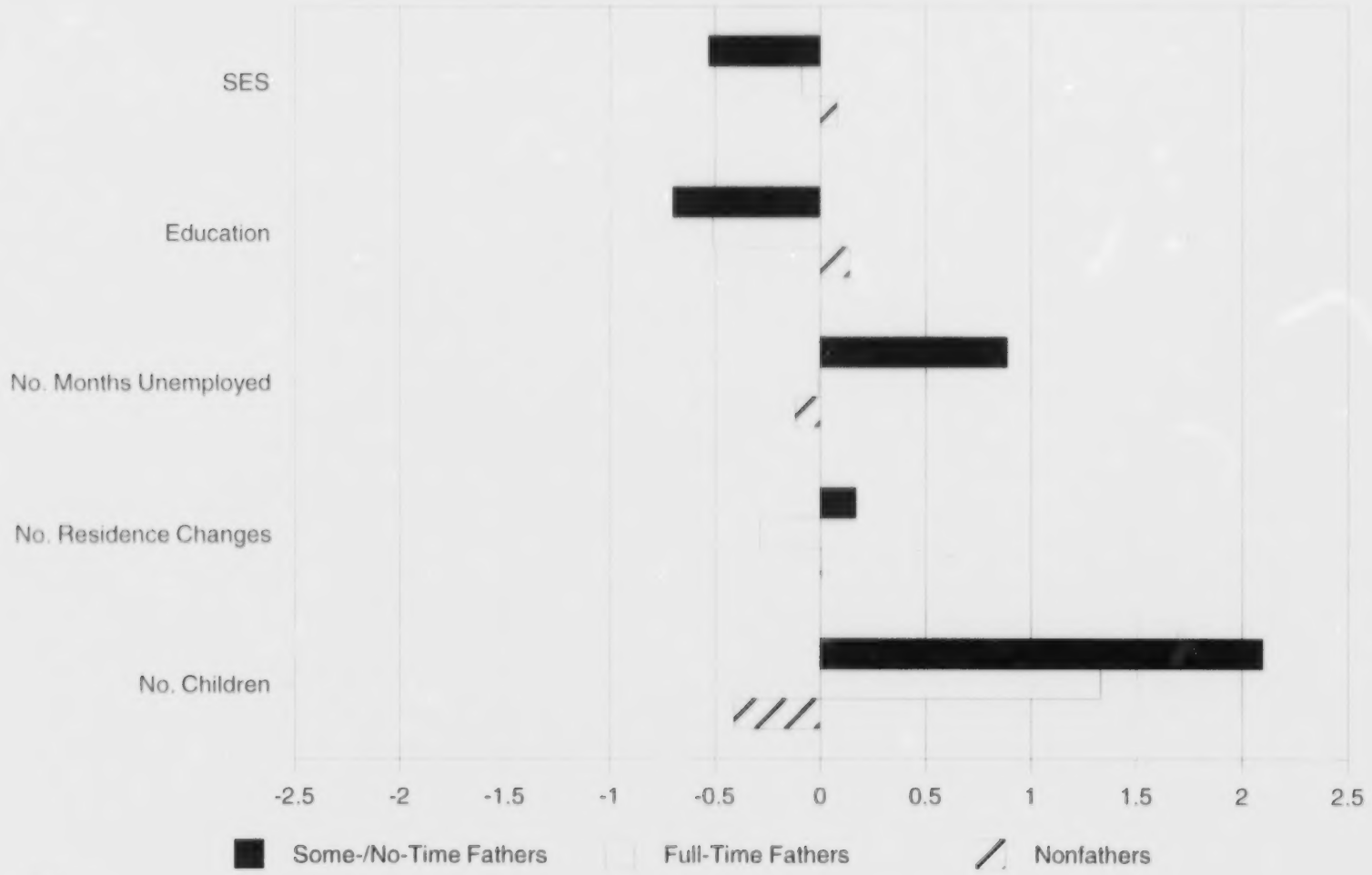


FIGURE 4b
Father and Nonfather Group Differences on Personality Profile
(means adjusted for covariate)

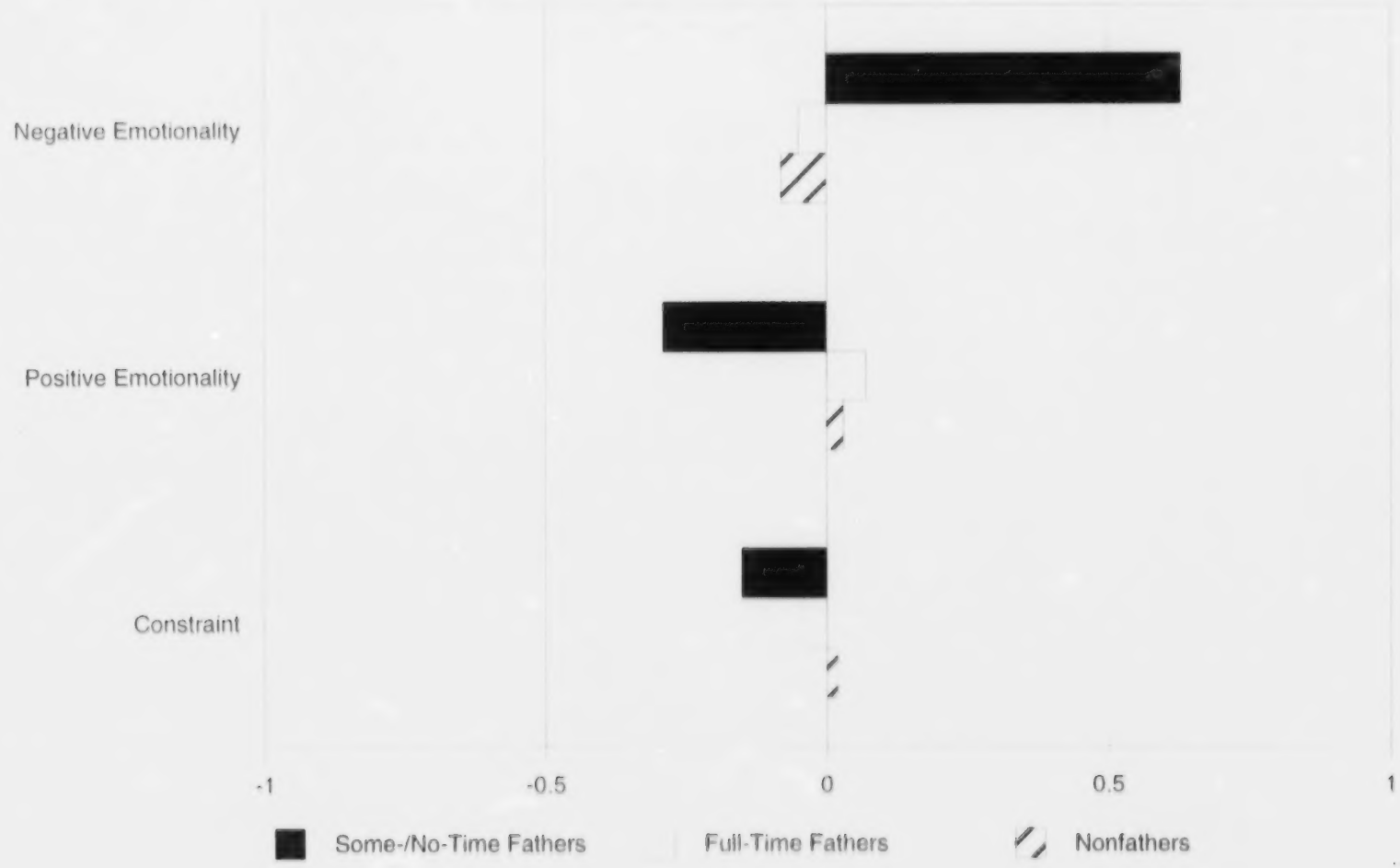


FIGURE 4c
Father and Nonfather Group Differences on Mental Health Profile
(means adjusted for covariate)

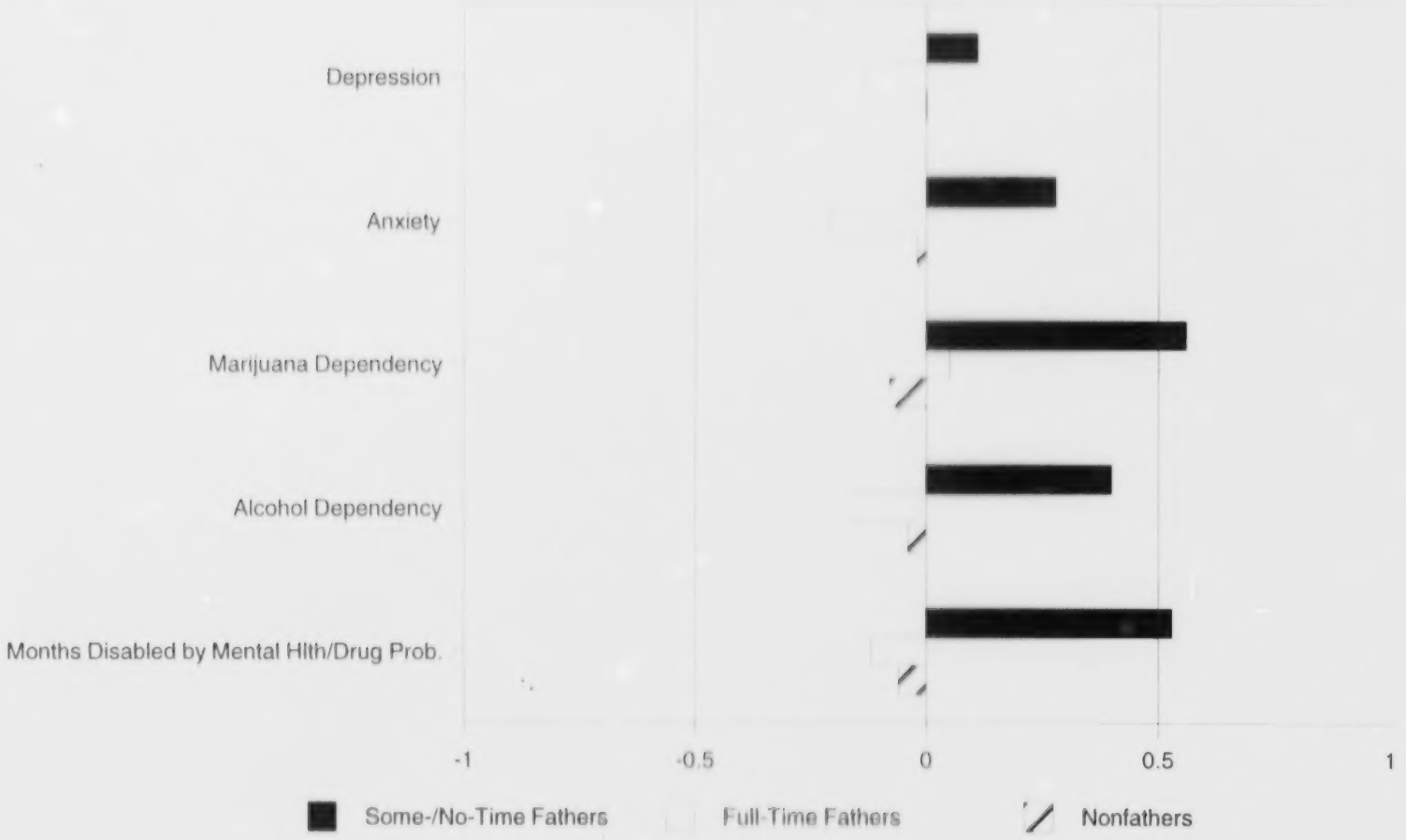


FIGURE 4d
Father and Nonfather Group Differences on Antisocial Behavior Profile
(means adjusted for covariate)

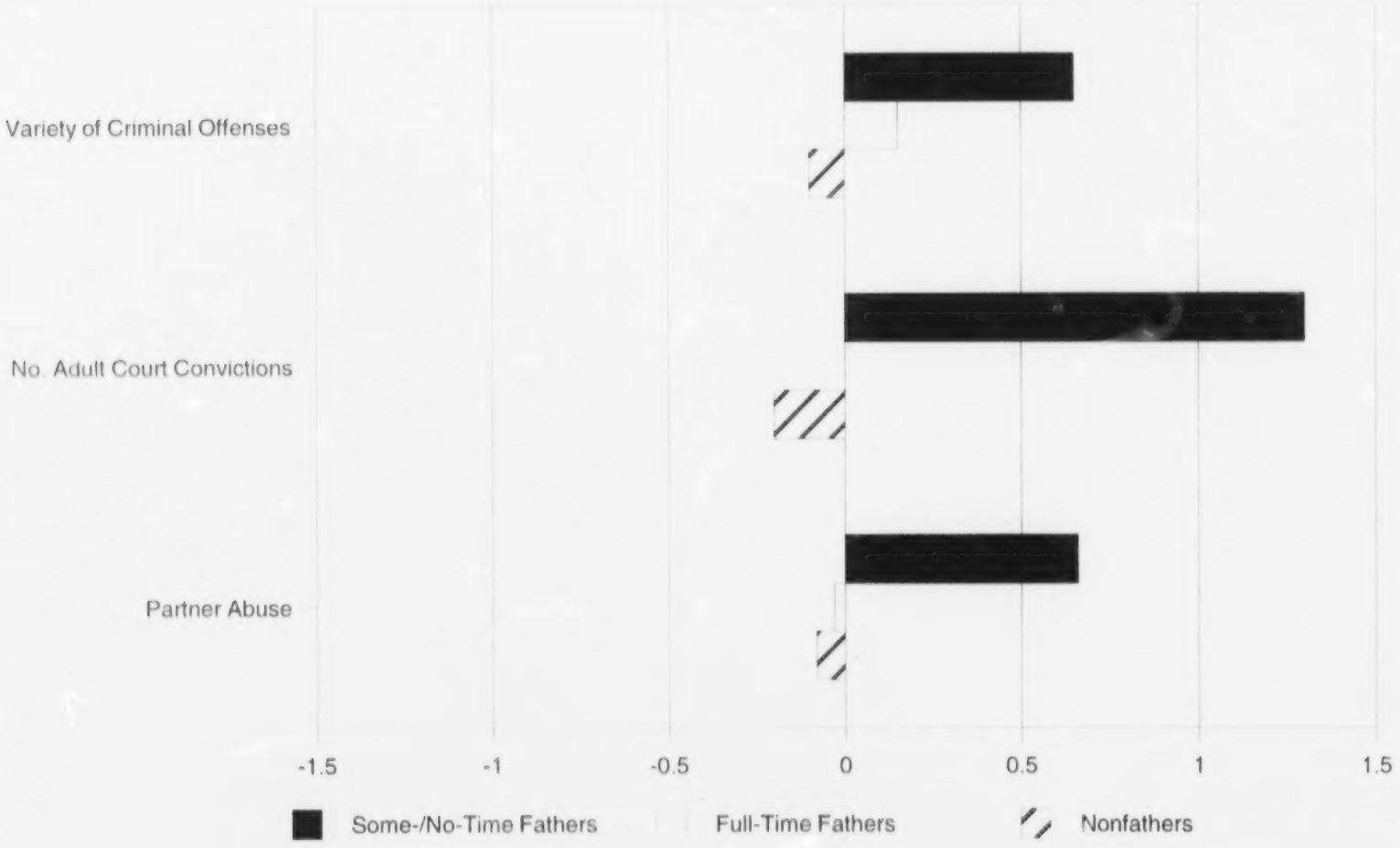
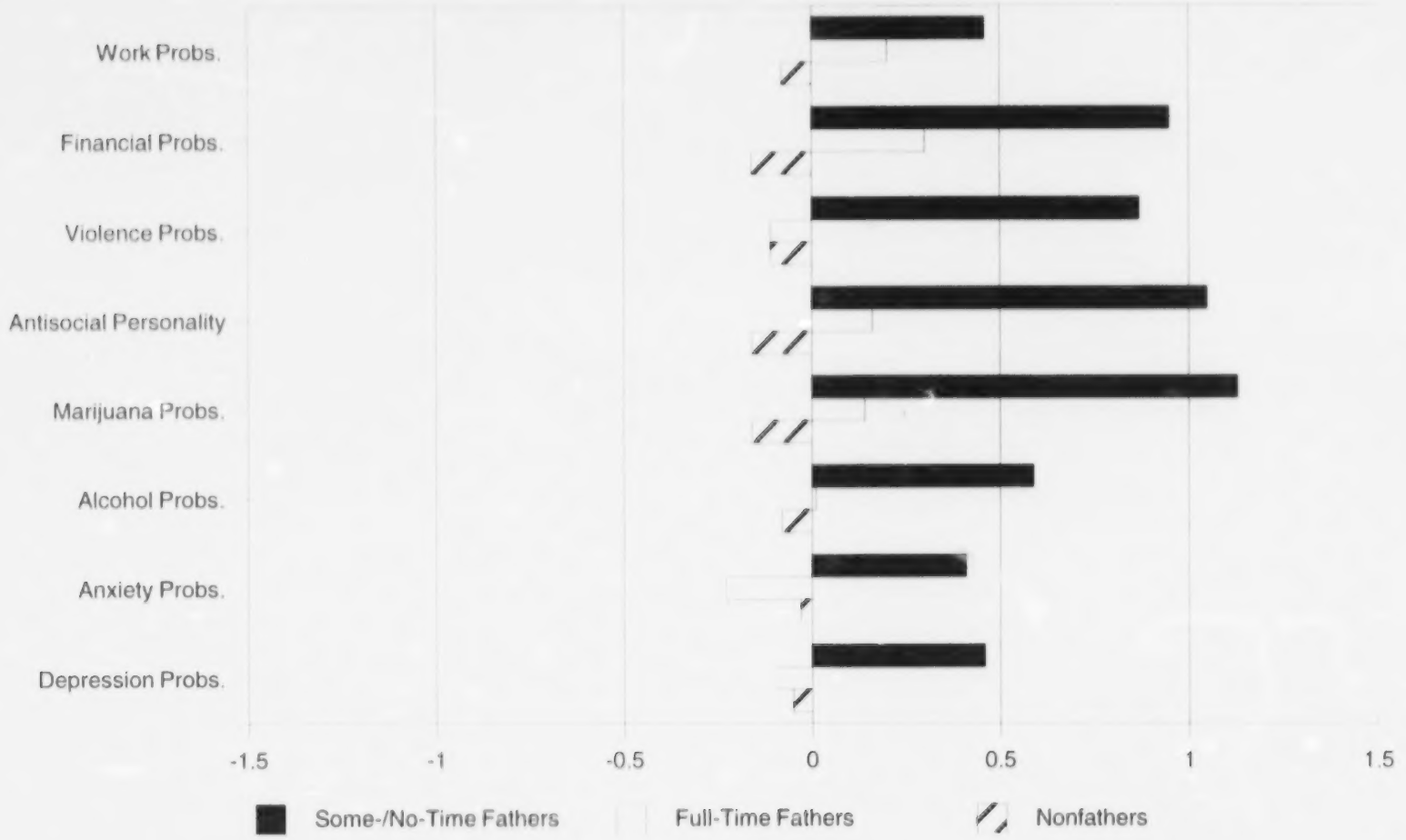


FIGURE 4e
Father and Nonfather Group Differences on Informant Reports
(means adjusted for covariate)



Personality Profile. Controlling for marital status, fathers who lived only some or none of the time with their children had significantly higher scores on negative emotionality [$t(490)=3.23$, $p \leq .001$] than fathers who lived full-time with their children. The groups did not differ on constraint or positive emotionality.

Mental Health Profile. Controlling for marital status, fathers who lived only some or none of the time with their children reported more symptoms of anxiety [$t(491)=2.26$, $p \leq .05$], marijuana dependency [$t(492)=2.41$, $p \leq .05$], alcohol dependency, [$t(492)=2.65$, $p \leq .01$], and spent more months disabled by a mental health or drug problem [$t(493)=3.02$, $p \leq .01$] than those who lived full-time with their children. The groups did not differ in the number of depression symptoms they reported.

Antisocial Behavior Profile. Controlling for marital status, fathers who lived only some or none of the time with their children engaged in significantly more types of criminal offenses [$t(493)=2.43$, $p \leq .05$], had more criminal convictions [$t(494)=6.99$, $p \leq .001$], and reported more partner abuse [$t(483)=2.92$, $p \leq .01$] than fathers who lived full-time with their children. Finally, though 17.6 percent of those who lived some or none of the time with their child reported having hit a child in anger, only 2.8 percent of the full-time fathers reported having done so [$\chi^2(2)=26.84$, $p \leq .001$].

Informant Reports. Controlling for marital status, fathers who lived only some or none of the time with their children had more financial problems [$t(471)=3.21$, $p \leq .001$], more problems with violence [$t(471)=4.69$, $p \leq .001$] and antisocial personality [$t(471)=4.42$, $p \leq .001$], more problems with marijuana [$t(471)=4.96$, $p \leq .001$] and alcohol [$t(472)=2.69$, $p \leq .01$], and more problems with anxiety [$t(471)=2.95$, $p \leq .01$] and depression [$t(470)=2.56$, $p \leq .01$] than those who lived full-time with their children. The groups did not differ in terms of their problems with work.

DISCUSSION

These analyses of a birth cohort were designed to identify which young men father children and what sorts of parenting and partnering they are likely to provide given their own life histories, their early transition to fatherhood, and their young adult social and psychological functioning. Our findings provide qualified support for the developmental theories that describe how negative early life experiences lead to precocious sexual behavior and underinvolved parenting. Consistent with other reports (Stouthamer-Loeber and Wei, 1998; Thornberry, Smith, and Howard, 1997), we found that being born to a teen mother, living with a single parent, early initiation of sexual activity, low interest in school, and a history of conduct disorder increased the likelihood of becoming a young father. A unique contribution of this study was its discovery that it is possible to predict which young men will stay with their child after it is born and that a shared set of family-of-origin and individual risk factors characterize early fathers and absent fathers. Prospective results revealed that fathers who had experienced a stressful rearing environment and a history of conduct disorder spent less time living with their first-born child. Contemporaneous results provided a more detailed social and psychological profile of these young fathers. Compared to fathers who lived full-time with their children, those who lived only some or none of the time with their children had lower SES, more unemployment, and were characterized by a low threshold for the experience of negative emotions such as fear, anxiety, and anger. They also experienced more symptoms of anxiety and alcohol and marijuana dependency, and spent more months disabled by mental health or drug problems. They engaged in more illegal and abusive behavior and had accumulated more criminal convictions. This social and psychological profile of poor adult adjustment among nonresident fathers was confirmed by independent reports provided by people who knew them well.

Implications for Methodology

Much of what we know about fathers is based on studies of fathers in intact families (Lamb, 1997). Our longitudinal study, in which we measured father involvement among *all* men who became fathers, highlights the extent to which selection bias might undermine the conclusions of those studies. Our own data show that fathers in stable cohabiting or married relationships differ from nonresident fathers on key psychosocial characteristics. To the extent that these characteristics influence their behavior as fathers, studies of intact families will not observe the full spectrum of fathering. This issue of selection bias has two implications (Berk, 1983). First, selection bias threatens external validity. Consider, for example, a study that seeks to examine the association between a father's job stress and his practice of harsh discipline. Studies of fathers in intact families may inadvertently select men who fall below an abusive threshold of harsh disciplinary practice. That is, the most antisocial men, who are the least likely to reside with their children, may engage in more harsh discipline than fathers in intact families. Thus, the range of harsh disciplinary practice observed in the sample of resident fathers will not represent the range of harsh disciplinary practice observed in the population, and excluding absent fathers will result in biased estimates of the association between job stress and harsh discipline. Second, selection bias threatens internal validity. Even if one was interested in generalizing to only a subset of cases (e.g., fathers in intact families), excluding absent fathers may result in a situation in which the effects of the exogenous variable (e.g., job stress) and the disturbance term are confounded and causal effects would be attributed to job stress that are really a product of random error. Unless researchers observe the full range of a given behavior, they will compromise the accuracy with which they describe how that behavior is linked to others.

Implications for Policy

Our findings suggest that nonresident young fathers who have not made a successful transition to young adulthood will need a great deal of help to become supportive parents and partners. Because we

did not directly observe fathers interacting with their children, we cannot say for certain that their poor young-adult psychosocial functioning impaired their parenting. However, findings from other studies have linked the criminal behavior, drug use, unemployment, and low educational attainment that characterized nonresident fathers in our sample with poor parenting (Fagot et al., 1998; Newcomb and Loeb, 1999). Thus, it is not immediately clear that simply encouraging young, absent fathers to live with their children is in the best interest of those children unless significant help can be made available to their fathers.

The poor outcomes that describe many absent fathers in young adulthood are preceded by a developmental history of antisocial behavior and conduct problems which are known to be moderately heritable (Rutter et al., 1999). As such, children born to fathers with a history of conduct problems are likely to be in double jeopardy as a result of a process by which the parents who pass on genes to their children also provide their rearing experiences (Scarr and McCartney, 1983). Thus, fathers who have a genetic predisposition for antisocial behavior may not only transmit a genetic risk but also provide suboptimal parenting because stable, antisocial behavior is known to predict harsh discipline, unstable work histories, and conflictual relationships (Caspi and Moffitt, 1995; Fergusson and Horwood, 1998). Thus, it is critical that we address the myriad problems faced by young, absent fathers if we are going to encourage them to move into the homes where their children are raised. Otherwise, they may simply exacerbate the difficulties already faced by single mothers and their children.

Most public programs for young, low-income fathers either focus on marriage as a primary goal or provide men with training and education which have the indirect effect of increasing their marital prospects in the long-term (Tamis-LeMonda and Cabrera, 1999). For instance, in the executive summary of a 1999 report from the Marriage Project of the Institute for American Values, Maggie Gallagher writes, "more and better progress in reducing teen pregnancy will require returning the idea and ideal of marriage to the center of our national discussion." Although supportive, cohabiting relationships have

been shown to decrease criminal behavior among individuals with a history of conduct problems (Sampson and Laub, 1993), such individuals are much less likely to attain supportive relationships in the first place (Quinton et al., 1993; Wright et al., in press). Given that antisocial men in our sample are likely to selectively affiliate with antisocial women (Krueger et al., 1998), the nonresident fathers in our sample are unlikely to find that marriage provides a "turning point" out of the difficulties they face. Findings in this study further suggest that having a child has not yet been a "turning point" for these young, absent fathers either. Thus, public policy efforts that promote fatherhood in a marital union must simultaneously address the multiple difficulties faced by unwed, absent fathers.

Finally, our finding that a history of conduct problems predicts the transition to fatherhood as well as decreased paternal involvement suggests that intervention programs should not wait until young men have made the transition to fatherhood. Rather, interventions to prevent early fatherhood should be targeted at preadolescent males and should be wide-ranging in scope to cover as many individual and family risk factors as possible, although such interventions would require enormous resources. Interventions could also be informed by studying at-risk men who are not yet fathers or who have made a successful transition to fatherhood and young adulthood to understand how they have overcome substantial odds.

Limitations

Our methodological strength—the prospective, longitudinal design of the study—is also its weakness. On the one hand, the design of our study allowed us to assess the paternal involvement of *all* young fathers and not just those in intact families. The longitudinal nature of the data provided information on risk factors for early and absent fatherhood. On the other hand, relatively few men in this contemporary birth cohort had become fathers by age 26, and it is not clear that our findings on relatively young fathers will generalize to older men. Moreover, the design of our study permitted neither an assessment of the father's relationship with his child's mother nor fine-grained measures of paternal

involvement. Moreover, we did not know if a father was absent of his own volition or because the mother of his child asked him to leave. Our findings require replication in samples in which a father's reasons for no longer living with his child can be taken into consideration. Moreover, the small sample of fathers who were absent for some, but not all, of the child's life required that we group them together and precluded a comparison of those at the extremes who may differ considerably in terms of their young adult psychosocial functioning. Finally, our sample represents a single cohort in one part of the world. Despite New Zealand's demographic comparability with other Western, developed countries, further studies are required to determine whether our results will replicate in other times and places.

It must be emphasized that many of the young fathers in our sample are highly involved parents who are successfully employed, crime-free, supportive partners to the mothers of their children. Our data clearly demonstrate that it is not the early transition to fatherhood per se that marks a young man as an uninvolved father, but rather the combination of individual and family-of-origin risk factors that situate him on a path ending in underinvolved parenting and psychosocial difficulties in young adulthood.

CONCLUSION

Interest in fathers is at an all-time high, and unprecedented amounts of private and public funding are available for research and policy initiatives on fathers (Tamis-LeMonda and Cabrera, 1999). A major contribution of this study is in helping to understand who young fathers are and which aspects of their individual and family-of-origin characteristics will be most effectively targeted in intervention studies designed to prevent early fatherhood and to increase positive father involvement. Increasing positive father involvement is a laudable goal, but if interventions are to prove successful in fostering intact families in which children benefit from the involvement of both parents, then intervention planners must understand young fathers' developmental histories, appreciate the challenges they face in becoming responsible and responsive parents, and acknowledge the help they will need.

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